ABSTRACT

A system and method for implementing a universal Reed-Solomon (R-S) encoder and decoder that can process variable sized data blocks and variable sized Galois fields in a same hardware device. The Galois field operators for multiplication, scale, inversion, and addition are each implemented as symbol-width bit-logic arrays that correspond to a maximum symbol width, and for symbols having smaller widths, the extraneous bits are unused. The present invention allows for selection of a multitude of operational data word widths based on a computer-controlled selection port on the hardware device.